Ticks!!

How to avoid being a host for the horrible, hungry summertime hordes

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The only thing worse than finding a tick crawling up your leg is finding one already attached and quietly having dinner. Mouth parts firmly anchored, these small creatures feed on the blood of their host without causing the slightest bit of pain or discomfort. They are common creatures and people who spend any time in the outdoors will eventually encounter one, or more. Ugh! But for a moment, set aside your disgust for the lowly tick and you will find them an interesting study in adaptability.

Trying to catch a blood meal must be a major task for the tiny tick. Ill equipped for running, they certainly aren't going to get up on their hind legs and chase something down. The lack of wings means they aren't going to take to the air to locate a host. No, the tick has developed a more sinister method of attack - waiting. Waiting, waiting and more waiting. Just how long a wait the average tick must endure is unknown, but some ticks have been kept in captivity under starvation conditions for over three years with no apparent ill effects. No wonder they appear so anxious when you see one running up your leg or across your shirt.

Ticks feed, of course, on the blood and tissue fluids of their host. Some species are very picky about who provides a meal, preferring small rodents, certain species of birds, or even amphibians and reptiles. Others are legs selective and whoever wanders by, even a human, is a likely target.

What ticks do in the meantime is anyone's guess, but they can endure a lot. Missouri is known for periods of extreme drought. These periods of dryness seem to have little affect on them. Moisture, too, is not a deterrent. In one study a nymphal tick was kept underwater at temperatures near freezing for 160 days. It was good as new and anxious as ever to find a meal when it was at last free of the water torture.

(left) Fasting and feasting describe the life of a tick. Ticks like the lone star tick, (left) have been known to live up to three years waiting for a meal to walk by. (right) When an unsuspecting host brushes past, the tick clambers aboard (above) anxious to dine on the host's blood. Almost everyone who ventures out-of-doors during Missouri summers can count on encountering a tick. The trick is to take precautions, but not let the pest "bug" your fun.

By now you are starting to get an idea of how formidable these little creatures are and why they are commonly encountered in the Missouri outdoors. They are well adapted to our extremes in weather, they have few natural enemies and they can live long periods of time without feeding. As if that weren't bad enough, they are prolific reproducers. One female can lay hundreds, sometimes thousands of eggs.

The most commonly seen ticks are "hard ticks," tough leathery animals that take a long time to feed. Like many other insects and invertebrates, life begins with a tiny egg. Usually a fertilized female lives through the winter, and with the warming of spring, she lays her egg, then dies. The eggs hatch in about a month, and the little hatchlings are called larva. They have six legs and are hungry to find a host. Many larvae often hatch out in close proximity to one another. Together they migrate to the top of tall grasses or brush. When a likely host wanders by, they all extend their tiny legs and grip on. Several hundred may get brushed onto the host at one time. Because of sheer numbers and tiny size many people refer to them as "seed" ticks, and indeed they will make every effort to plant themselves in the skin of the unwary host. They begin feeding as soon as they can but feeding is a long, slow process, taking at least four to eight hours in many species and as long as several days in others.

After feeding, the larval tick drops from the host and rests, allowing the meal to digest. In many species they are inactive for a long period of time, as that will be the only meal for that season. Eventually the larva molts its skin and becomes a nymph, a miniature version of the adult, now sporting eight legs instead of just six. The eight-legged nymph follows the same pattern of locating a blood meal, dropping off, resting and molting again. Some species need one host, some two, and others many hosts before they finally are able to molt into the adult tick.

Since wandering about the forest floor isn't a very good way to find a mate, ticks generally find one another while still on the host. The smaller male mates with the female, often when she is still attached to the host and feeding. When she drops from the host the courtship is over. It's a whirlwind romance for her and a last meal for him, as he dies soon after.

There is generally no discomfort from a feeding tick, and the amount of blood consumed is hardly something anyone will notice; but still, the idea of a parasite using you for breakfast is universally repulsive. There are other reasons to be concerned about tick feeding. The can transmit a number of diseases and create some very real health concerns. Everyone who participates in outdoor activities should be informed about these potential problems.

Some people have an allergic-tap reaction to the salivary secretions of the tick. This can cause tick paralysis, particularly if the bite is at the base of the skull on the back of the head. Paralysis can affect certain parts of the body or it can result in nearly total paralysis. This happens most often in children and small adults. As disturbing as it seems the paralysis begins to disappear with the removal of the offending tick, and total recovery can be expected. Another reaction to the salivary secretions is tick toxicosis. It is essentially a poisoning of the host even though no venom is injected. It begins with redness and swelling at the site of the tick bite and can become quite serious, even fatal. Both tick paralysis and tick toxicosis are uncommon.

In addition to the tick bite and reaction to salivary secretions, there are a number of tick-born diseases: tularemia, Rocky Mountain spotted fever and Lyme disease. Named for the Connecticut town where it was first diagnosed, Lyme disease is presently in the news. It is currently causing significant concerns in the northeastern United States. Although Missourians should be informed about the disease, its occurrence in Missouri has yet to be medically documented. In the eastern United States it is spread primarily by the deer tick *(Ixodes dammini)* that does not occur in Missouri. Presumably the disease can also be spread by the American dog tick *(Dermacentor variables)*, and the lone star tick *(Amblyomma amercanum)*, both of which occur here. Missourians should not overreact to this potential threat but continue to minimize their contact with any tick-born disease.

Dealing with the medical aspects of these tick-born diseases is best left up to public health agencies and your physician. As a person active in the outdoors, PREVENTION is your best course of action. Preventing and minimizing exposure to ticks will do more to avoid infection with a tick-born disease than anything else. Whenever possible, avoid tick infested areas, especially during the time of year they are most active (April through September). This isn't always realistic

so when you are outdoors wear appropriate clothing. Wear boots or other proper footwear. Wear long pants ant cover up your legs. Sandals and shorts may be comfortable in the summer heat but they provide easy access to hungry ticks. Also cover your arms and leave as little skin exposed as possible. Clothing that is secure around the ankles and wrists is helpful. These are additional benefits from wearing appropriate clothing. You'll be providing a cushion against abrasions and protection from brambles and brush. And yes, you'll minimize your encounters with poison ivy.

Apply repellents to your skin and to clothing. Ticks are very resistant to insecticides, but there are effective repellents on the market. Some of them are put directly on the skin. Others, like those containing diethylouamid (Deet), are sprayed on the clothing and allowed to dry, giving you added protection. Socks and pant legs are important places to treat since they provide easy access to ticks.

Since pets and livestock are also convenient hosts for ticks, treat them often and prevent tick infestation. Not only will your animals be more comfortable and healthy, but they will bring fewer ticks directly to you, thus minimizing your exposure. You'll be lowering the tick population in the general vicinity, and indirectly reducing your own tick exposure.

Whenever possible keep weeds and grasses cut very short. This is appropriate in the lawn around homes and occasionally along woodland paths. It is not practical and not good wildlife management in other locations.

An engorged female American dog tick (left) has fed and is ready to lay eggs - up to 6,500 of them. The tick in the center is a yearling tick, or nymph, and measures about 1/16-inch diameter; it is larger than it's younger brothers, the seed ticks, which are about the size of a pin prick. (Use masking tape to remove unattached crawling seed ticks - just place the sticky part of the tape against the ticks.) The American dog tick (right) feeds on humans, dogs, cattle, deer and other mammals.

One of the most common questions people ask when there is a tick outbreak is what pesticides can be sprayed to kill them. There are several chemicals recommended for this use but in most cases there is little if any impact on the tick population. They are amazingly resistant to most pesticide use.

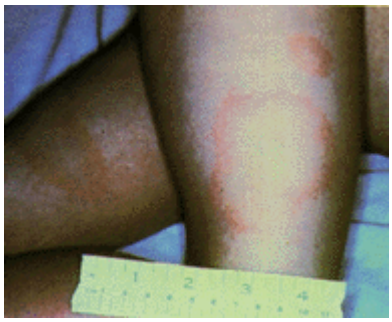
One of the most important things people who spend time outdoors must do is get in the habit of personal inspection following every outdoor activity. Once inside, remove clothing and check the body thoroughly for ticks that are running loose or already attached. Adults must do this for their children. Since most tick-transmitted diseases are not transferred to the host until the tick has been feeding for some time and is almost full, the earlier the tick is located and removed, the lower the chance of being infected by the tick pathogen. Never allow more than four to eight hours to pass without a thorough tick inspection. Make this a regular habit, particularly when you are in tick-infested areas during the summer months.

If you do find a tick, prompt proper removal is necessary. Never mind all of those great ways to tempt the tick into unfastening from you skin. Applying fingernail polish, a hot match head, bleach or insecticides are all ineffective and only complicate the task at hand. Once a tick has initiated feeding, the salivary secretions form a cement that locks the jaws in place. This hold can only be loosened when feeding is finished and another chemical is secreted to dissolve the cement. It is important to remove the tick alive and intact. Secondary infections from improperly removed ticks are much more common than any tick-born disease.

Removing a tick that is already attached is a four part procedure. First, disinfect the area of attachment. Next, grasp the tick firmly as close to the head as possible, protecting your fingers with tissue or rubber gloves. Tweezers may also be helpful. Pull the tick away from the skin with a

firm upward and outward movement. Never jerk or twist the tick when removing. It is important that the mouth parts remain attached to the tick, not left embedded in the skin. Finally, dispose of the tick properly and disinfect the area again. Recommended disposal methods include dropping them in alcohol or crushing them with your shoe heel or between two rocks - but never with your fingers.

Why so cautious? The most important consideration is to minimize your risk for disease infection. Even if the tick does carry a disease you are likely not infected until it has been attached for several hours. During the removal process you want to leave the tick intact, with the disease organisms inside. Squeezing the tick during the removal process may artificially inject the disease organisms into your body. A common way to kill the tick is to crush it between your fingernails, but this exposes your skin to the disease you are trying to avoid. The organism can enter your body artificially though your nose, eyes, or even cracks in your skin. In general these diseases are difficult to transmit, but squashing the tick exposes you unnecessarily.



Most cases of Lyme disease are recognized by the presence of a skin lesion that begins as a small red bump, usually at the site of the tick bite, then enlarges to become a red ring.

In the days and weeks following a tick bite, watch for physiological signals that may alert you to a tick-born disease. Watch for a localized lesion or swelling at the site of the tick bite. In Lyme disease, a reddened target begin to develop within a few days, eventually reaching several inches in diameter. Be on the lookout for unexplained flu-like symptoms: fever, headaches, body aches, dizziness. Unusual rashes are important signals. Sometimes the lymph nodes become swollen and tender. An individual infected with a tick-born disease may have all or none of these signals. A doctor seeing some of these symptoms may not relate them to ticks, so tell the physician if you've recently been tick bitten or been in tick infested areas so that an accurate diagnosis is possible.

People who spend time in the Missouri Outdoors should not overreact to the presence of Lyme disease of any other tick-born disease in Missouri. Our best protection is PREVENTION. Minimize your exposure to ticks with every outdoor activity, and if you are bitten to remove the tick as soon as possible. do so properly and be informed about the warning signals of tick-born disease. Ticks are adaptable creatures who have an infamous history in Missouri and no doubt a future as well. Don't be intimidated by their presence and let them ruin your outdoor activities.